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In re Application of

HALLENBECK et al.

Application Number

08/487992

Filed

6-07-95

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United States Patent [19]

Hallenbeck et al.

[11] Patent Number: 5,998,205

[45] Date of Patent: Dec. 7, 1999

[54] VECTORS FOR TISSUE-SPECIFIC REPLICATION

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PCT Pub. Date: Jun. 6, 1996

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[51] Int. Cl.⁶ C12N 15/00

[52] U.S. Cl. 435/325; 514/44; 424/93.21;
536/23.1; 435/69.1; 435/320.1; 435/455

[58] Field of Search 435/172.3, 320.1,
435/325, 455, 69.1; 514/44; 424/93.21;
536/23.1; 935/33, 52, 55, 66

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[57] ABSTRACT

The invention generally relates to targeted gene therapy using recombinant vectors and particularly adenovirus vectors. The invention specifically relates to replication-conditional vectors and methods for using them. Such vectors are able to selectively replicate in a target tissue to provide a therapeutic benefit from the presence of the vector per se or from heterologous gene products expressed from the vector and distributed throughout the tissue. In such vectors, a gene essential for replication is placed under the control of a heterologous tissue-specific transcriptional regulatory sequence. Thus, replication is conditioned on the presence of a factor(s) that induces transcription or the absence of a factor(s) that inhibits transcription of the gene by means of the transcriptional regulatory sequence with this vector; therefore, a target tissue can be selectively treated.

20 Claims, 5 Drawing Sheets